

CSCI 3331 OBJECT-ORIENTED PROGRAMMING METHODS

CREDIT HOURS: 3
PREREQUISITES: CSCI 2302 and CSCI 2311.
GRADE REMINDER: Must have a grade of C or better in each prerequisite course.

CATALOG DESCRIPTION

Use of a modern object-oriented programming language for industrial applications emphasizing contemporary development practices. Comprehensive programming assignments.

PURPOSE OF COURSE

To explore parallel computing using multithreading concepts of a modern programming language. To familiarize students with advanced object-oriented modeling and programming techniques and provide exposure to interactive software development.

EDUCATIONAL OBJECTIVES

Upon successful completion of the course, students should be able to:

1. Apply features of a modern object-oriented language, including use of library components.
2. Implement a variety of applications using a contemporary object-oriented programming language.
3. Develop programs whose computation can be split into concurrently running tasks.
4. Demonstrate understanding of threads and multi-threaded systems.
5. Demonstrate understanding of parallel computing concepts.
6. Design software with a front end (interface) and back end(core) running in parallel.

COURSE CALENDAR

This course meets for a minimum of 37.5 lecture contact hours during the semester, including the final exam. Students have significant weekly reading assignments. Students are expected to complete 6-7 significant programming assignments, and 2-3 periodic exams in addition to the final exam. Students are expected to prepare for any class assignments or quizzes over the material covered in class or in the reading material. Successful completion of these activities requires at a minimum six additional hours of outside of classroom work each week.

Introduction to Modern Object Oriented programming language	3
Input/output	
Flow control	
Classes, methods, objects	
Introduction to Advanced Objected Oriented programming	8
Building objects from pre-defined libraries	
Introduction to Graphical Interface Design	3
Event handlers	
Introduction to Threads.....	14

Synchronization	
Locking	
Thread Safety	
Thread signaling	
Parallel Programming	14
Nonblocking Synchronization	
Parallel Classes	
Task Parallelism	
Splinlock and Spinwait	
Exams (plus final)	3
	TOTAL
	45

REFERENCES

Albahari, Threading in C#, O'Reilly, 1st, 2011

Miles, C# Programming Yellow Book, Microsoft Press, 8th, 2016